

## CLAIMS

- [1] A condition detecting sensor, comprising:
- a first antenna arranged on one of the two members moving toward  
5 and away from each other,
- a second antenna arranged on the other member and paired with the  
first antenna,
- a generator generating signal waves,
- a mixer connected to the first antenna, the second antenna, and the  
10 generator and mixing signals, and
- a band-pass filter connected to an output of the mixer and passing  
only prescribed frequency bands,
- wherein the condition detecting sensor senses a distance between the  
two members, as well as the presence of objects between the two members, by  
15 sensing the strength of the signal outputted from the band-pass filter.
- [2] The condition detecting sensor according to claim 1, comprising an  
S-meter measuring the strength of signals outputted from the band-pass  
filter.
- [3] The condition detecting sensor according to claim 1, comprising an  
20 S-meter measuring VSWR values in the output of the band-pass filter.
- [4] The condition detecting sensor according to claim 3 performing the  
sensing of objects by taking the second derivative of the VSWR value.
- [5] The condition detecting sensor according to claim 1, comprising a  
downconverted signal generator generating a downconverted signal wave,  
25 wherein the band-pass filter detects only a difference between the  
signal wave and the downconverted signal wave.